

CLAIMS

1. A method for producing an electrochemical device composed of a first electrode, a second electrode, and an ion exchange membrane held between these electrodes, which comprises forming a catalyst layer containing a catalytic substance and polyvinylidene fluoride and attaching ion exchange groups to the polyvinylidene fluoride in the catalyst layer, with the resulting catalyst layer containing ion exchange groups being used for at least either of the first and second electrodes.

2. The method for producing an electrochemical device as defined in Claim 1, which further comprises bonding the catalyst layer to a precursor of ion exchange membrane composed of polyvinylidene fluoride and bringing the bonded body into contact with a compound containing ion exchange groups, thereby introducing ion exchange groups into the polyvinylidene fluoride in the bonded body, through substitution.

3. The method for producing an electrochemical device as defined in Claim 2, which further comprises dipping with heating under pressure the bonded body in a solution of a compound containing ion exchange groups, thereby introducing ion exchange groups into the

polyvinylidene fluoride constituting the catalyst layer and the precursor of ion exchange membrane, through substitution.

4. The method for producing an electrochemical device as defined in Claim 3, which further comprises laminating the first electrode, the catalyst layer, the precursor of ion exchange membrane, the catalyst layer, and the second electrode, and subsequently dipping the resulting laminate in the solution.

5. The method for producing an electrochemical device as defined in Claim 1, wherein the ion exchange group is at least one specifies selected from sulfonate group, carboxyl group, phosphate group, linear sulfone group, and perfluorocarbon liner sulfone group.

6. The method for producing an electrochemical device as defined in Claim 1, wherein the catalyst substance contains at least one species selected from platinum, ruthenium, palladium, silicon, carbon, aluminum, magnesium, cobalt, iron, nickel, molybdenum, and tungsten.

7. The method for producing an electrochemical device as defined in Claim 1, wherein the ion exchange membrane is one which is composed of at least one species of ion exchanging material selected from perfluorocarbon sulfonic acid, non-fluorocarbon sulfonic acid, partially

fluorinated carbon sulfonic acid, perfluorocarboxylic acid, non-fluorocarbon carboxylic acid, partially fluorinated carbon carboxylic acid, perfluorophosphoric acid, non-fluorocarbon phosphoric acid, and partially fluorinated carbon phosphoric acid.

8. The method for producing an electrochemical device as defined in Claim 1, wherein the ion exchange membrane is prepared such that it functions as an electrolyte.

9. The method for producing an electrochemical device as defined in Claim 1, wherein the electrochemical device is a fuel cell.